

THE GLOBAL DILEMMA GUNS OR BUTTER



**IBM®, Tandy®, and
100% IBM
compatibles**

TWO 5.25" DISKS and ONE
3.5" DISK INCLUDED
640K MINIMUM for EGA or
VGA/MCGA modes; 512K
MINIMUM for CGA mode
Mouse recommended
\$100941

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BALANCE OF POWER



The Global Dilemma: Guns or Butter

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The Global Dilemma: Guns or Butter is a game about macroeconomics. Your goal in this game is simple: to conquer the entire world. Sound like fun? There's one small problem: just how are you going to go about conquering the world? Answer: with armies. Where will you get these armies? You will build them. At least, you will build the weapons needed to arm your troops. Where will you build these weapons? In weapons factories. Of course, weapons factories need laborers. They also need supplies of raw materials and intermediate materials such as **high-grade** steel and explosives. Where will you obtain these intermediate materials? In **factories**, of course-factories that you will have to build, populate **with** laborers, and supply with raw materials. And then there are the **mines and other** facilities that produce raw materials-you'll have to set **those up, too**. You're going to be very busy getting all this working. **Conquering** the world isn't as easy as it used to be. Let's get started.

One quick note: there is a Help facility in this game. **It's** the first item in the Game menu (**alt-H** from the IBM keyboard). You can select it while you are in any display and it will point out the **different elements of** the display and explain each of them.

Macintosh Installation Instructions

What You Need

- Macintosh Plus, SE or II computer
- One 800K disk drive

Note: If you plan to run **The Global Dilemma: Guns or Butter** under Multifinder, you'll need to increase the memory allocation to 1.5 meg under **Get Info** in the **Desktop**.

Playing **The Global Dilemma: Guns or Butter** from the Floppy

1. Boot your Macintosh with a **System** disk.
2. Eject the **System** disk once the machine has fully booted.
3. Insert the disk **The Global Dilemma: Guns or Butter** in the drive.
4. Double-click on the **Global Dilemma** icon to begin the game.

Installing on a Hard Disk Drive

The Global Dilemma: Guns or Butter is not copy-protected. You may copy the contents of this diskette onto your hard drive. However, there are some technical constraints. You must preserve the file structure of the diskette. That is, all the files on this diskette must be grouped together in the same folder on your hard disk. The best way to do this is to simply copy the folder "(Guns Or Butter)" directly onto your hard disk. If you mess around with the file structure, you can cause the program to fail. You should not rename any of these files, or move them out of the "Guns Or Butter" folder, or modify them. Just use them the way they are and everything will go just swimmingly.

To play the game, just double-click on the **Global Dilemma** icon. Later on, if you want to resume playing a previously saved game, just double-click on the saved game icon. You will recognize it by its name and the fact that it has the soldier and the farmer standing inside a document icon.

IBM Installation Instructions

What You Need

- IBM, Tandy, or 100% IBM compatible
- Color or enhanced graphics adaptor
- 512K for CGA mode
- 640K for EGA, VGA, or MCGA mode

Note: If you would like to take advantage of the option to save your game, you'll need to format a blank disk to use for saved games before you begin.

Playing the Game from Floppies

1. Insert a DOS disk (version 2.1 or higher) into Drive A.
2. Turn on your monitor or TV and computer.
3. When the **A>** prompt appears on the screen, replace your DOS disk with the program disk (**Disk 1**, if you are using the 5.25" version of the program).
4. Type **GB** and press **ENTER**.
5. You will be asked to select one of five video modes:
CGA 640 X 200 Monochrome
EGA 640 X 350 Monochrome
MCGA 640 X 480 Monochrome
EGA 640 X 350 16 Color
VGA 640 X 480 16 Color
Choose the video mode that's right for you by entering the correct number.
6. Next, you will be asked to designate the drive to which the game will be saved at the end of each turn. You also have the option of playing the game without saves; in the event you choose to play without saving the game, the **Undo Turn** option will not be available.
7. The video mode and the "save drive" information will be saved to the program disk. In the future, should you wish to change either designation, type **GB S** at the system prompt when you load the game.

Installing and Playing the Game on a Hard Drive

1. Boot the system, if necessary, and log onto your hard thrive (for example, **C :**) .
2. To install the program, insert the program disk (**Disk 1** if you are using the 5.25" version of the program) into a floppy drive (for example, Drive A). At the **A>** prompt, type **INSTALHD**. The program will be installed onto Drive C in a subdirectory called **G&B**. To install the program to a hard drive other than Drive C (for example, Drive D), type **INSTALHD D:** (or the appropriate hard drive designation) at the **A>** prompt. Follow the on-screen instructions. (If you are installing the 5.25" version of the program, you will be prompted when to insert **Disk 2**.)
3. To play **Guns or Butter**, log onto the hard drive directory **G&B** that contains the game's files. At the DOS prompt, type **GB** and press **ENTER**.
4. Follow steps 5 through 7 above under **Playing the Game from Floppies**.
5. To remove **The Global Dilemma: Guns or Butter** from your hard drive, simply delete all of the game files.

IBM Keyboard Controls

To Select Pulldown Menus:

G Game
K Kingdoms
A Affinities

Under the Game Menu:

alt-H Help
alt-Z Undo Last Turn
alt-S Turn Sound On/Off
alt-N Next Phase
alt-U Skip Unions
alt-Q Quit

Cursor/Arrow Movement:

<i>Key board</i>	<i>Numeric Keypad-</i>	<i>Num Lock</i>	<i>Off</i>	<i>Movement</i>
Up Arrow		8		UP
Down Arrow		2		Down
Right Arrow		6		Right
Left Arrow		4		Left
Page Up		9		Diagonal (upper right)
Page Down		3		Diagonal (lower right)
Home		7		Diagonal (upper left)
End				Diagonal (lower left)

Holding down the CTRL key with any of these keys will cause the **cursor to move in smaller increments**. Pressing the 5 key on the numeric keypad will move the cursor to the center of the screen. Press the **Space Bar** to "click" the mouse button. Use the INS key as a toggle to "hold" the mouse button. (This is used to set troop movement numbers and troop movement directions. It is also used to adjust the scroll bar on the labor allocation screens as well as other scroll bars in the game.)

Note to Tandy 1000 users: If you are using the numeric keypad, you must have **Num Lock** on.

Initial Dialogs

Fire up the game; it will hit you with a dialog box that asks for the name of the continent on which you will play. You can name any continent you wish; the computer will create the unique continent with that name. If sometime in the future you want to play a game with the same continent, just use the same name. For now, let's just use the default continent, Kittycat.

Note to IBM users: Continent names may contain only letters—no numbers or other symbols, including spaces.

The computer will also want to know whether you wish to play at the Beginner level, the Intermediate level, or the Expert level. As you might imagine, the Beginner level is the simplest, while the higher levels are more complex. We will stick with the Beginner level for now. Press **RETURN** or **ENTER**, or click in the “Proceed” button.

Now the computer wants to know your name. Type in your name. If your name is longer than eight letters long, you're in trouble, as it will only use the first eight letters of your name. Unless you want it to call you DorkHead, type your name, then press **RETURN**, **ENTER**, or click on the “Proceed” button.

Terse Rules for Impatient Players

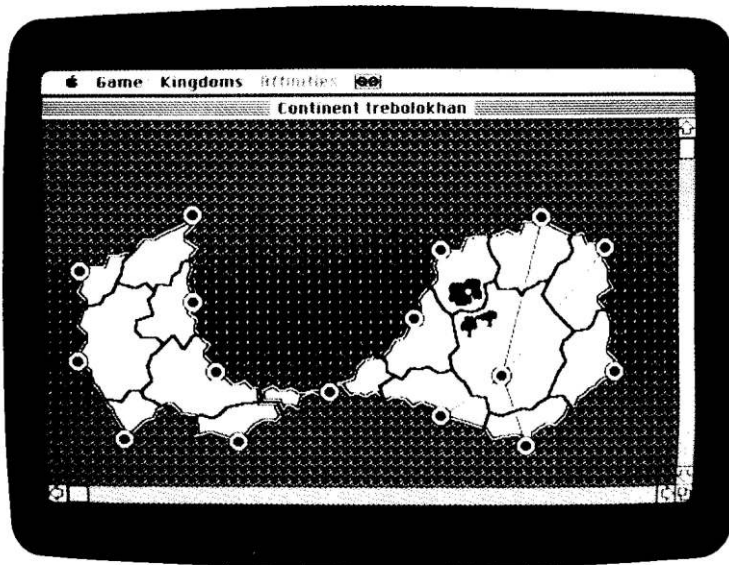
After examining the map, select “Next Phase” to go to the Production phase. It lists your total production of each commodity. **Click on the** name of a commodity to look at its production diagram. Adjust **the** labor scroll bar to change its production. Note how the total flow of goods from one factory to another changes. Make some agricultural tools to make food and some weapons for your armies.

Select “Next Phase” to go to the military orders **phase**. Click and drag on the white dot inside the tiny gray scroller bar in the center third of the provincial square and drag to a target province to assign a military objective. When satisfied with your orders, choose “Next Phase.” Watch your orders being executed. Next will come the Rankings phase, showing how well you are doing. Select “Next Phase” to begin **a new turn**.

Each phase has a “Help” item in the Game menu that explains what to do.

The Mao

The computer will create the continent on which the game will be played. This process will take a few seconds. If this delay irritates you, remember the old saw about Rome not being built in a day. Through the wonders of computer software, we are building an entire continent in just a few seconds. If only those Romans had had an accelerator board. . .

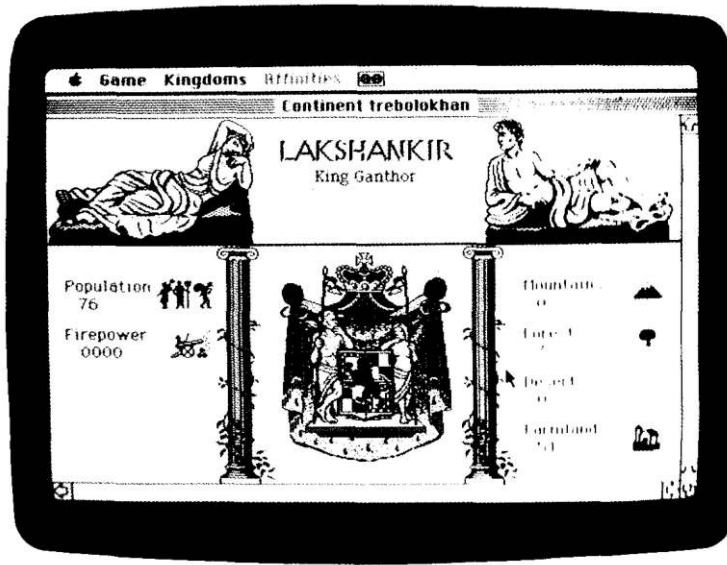


Note to IBM users: On slower machines, EGA graphics may take up to five minutes to load. You may wish to consider running the program in CGA instead to reduce this load time.

The completed continent consists of several parts. The most easily recognized are the straight roads connecting the towns. The towns show up as circles. There is one town inside each province. A province is an irregular-shaped region surrounded by a single black border. A group of provinces together make up a country. A country is surrounded by a double black border. There are two countries in the Beginner level game: yours and Kublai's. Kublai is the computer-controlled opponent whose country you will try to conquer.

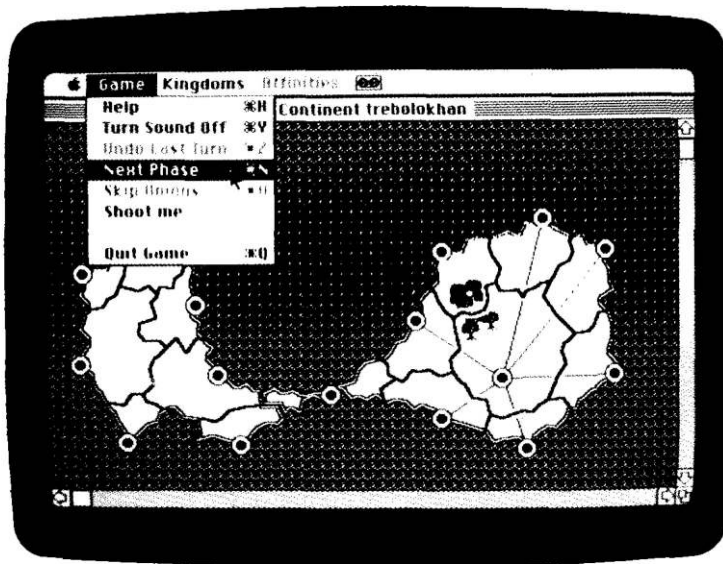
The map might also include forests, marked by trees, deserts, shown as collections of tiny dots, and mountains, indicated by triangular mountain symbols. These terrain features really do have an effect on the game, but we'll come back to them later.

You can find out more about a province by the simple expedient of clicking on its town. With a “whoosh:” you’ll be presented with a display telling you about that province: its name, owner, the military forces present in the province, the population, and the terrain present inside the province. Click the mouse button when you are satisfied.



If you didn't like the "whoosh" sound when you opened the province, you can turn off all the sound effects by using the second menu item in the Game menu (**alt-S** from the IBM keyboard). Of course, if you do this, you'll miss out on all the great sound effects created using the revolutionary new Crawford Oral-Nasal Audio Generation Technology.

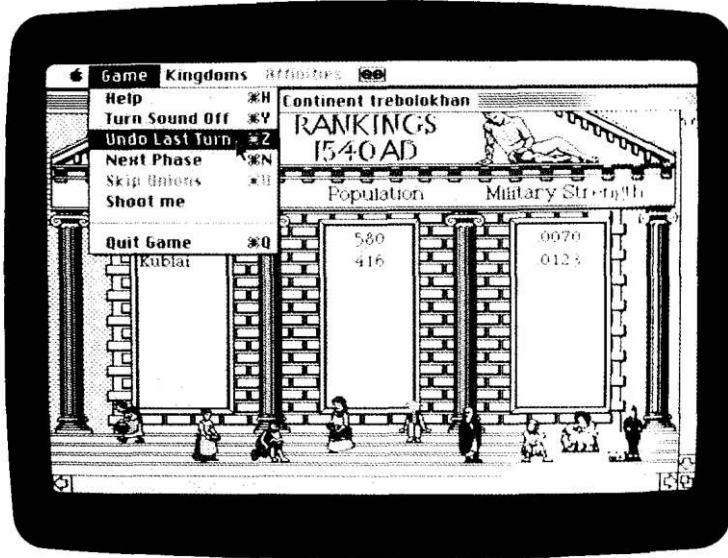
After you have explored the map to your satisfaction, select "Next Phase" from the Game menu. (Mac users can just press **Command-N**; IBM keyboard users can press **alt-N**.)



Phases

This is a complex game. There are many tasks for you to perform. To make it easier to understand your many responsibilities, I have arranged them in a sequence. The game requires you to do one thing at a time before moving on to the next task. This has the advantage of simplifying a very complex game. It has the disadvantage of preventing you from going back and changing something once you have completed its phase. Remember this well: don't ever select "Next Phase" until you're certain that you've finished your work in that phase. Once you choose "Next Phase:" you can't go back.

Fortunately, I have provided another feature that ameliorates this harsh constraint. The game automatically saves itself at the end of each turn. It does not even ask you for the filename under which to save itself. Instead, it uses the name of the continent you chose and the level of the game. This allows you to undo an entire turn. Just select the "Undo Turn" option from the Game menu. Unfortunately, there's a catch: you can only undo a turn at the end of the turn, during the Rankings phase. Call this another one of those "wonders of computer software."



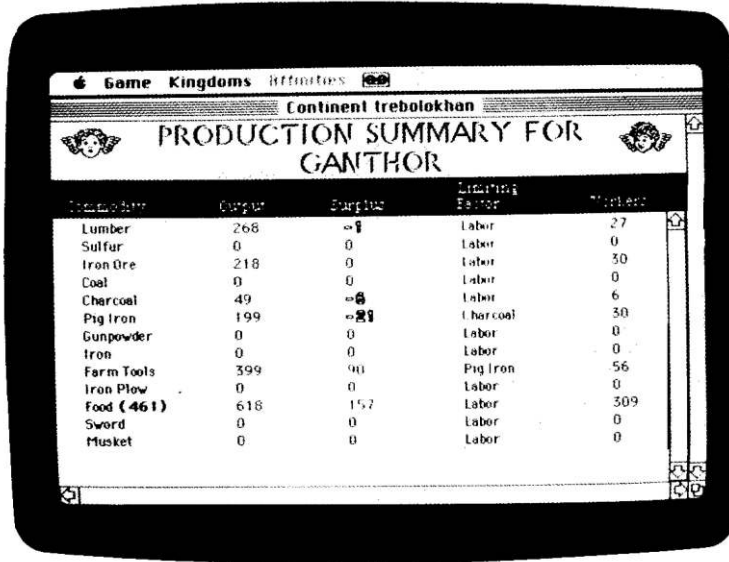
This auto-save feature also allows you to quit the game unfinished and return later to resume playing. Of course, since it saves the game at the end of the turn, if you quit halfway through the turn, the moves that you made during that turn will be lost. The best time to quit the game is during the Rankings phase. If you want to quit at any other time, the program will allow **you** to do so, but remember that all of the moves that you entered during the aborted turn will be lost. The computer will remind **you of** this before allowing you to quit.

If you're playing on a Mac and you choose to restart a previously saved game, you have to double-click on the saved game icon while in the desktop. There is no way to load a previously saved game from within the game. If you mistakenly try to load a previously saved game by typing in its name when it asks you for the name of the continent, you will instead erase the saved game and replace it with a new one! So don't make that mistake! Also, if you are playing the game from a floppy disk instead of a hard disk, remember that you have room for only a few saved games, so try to clear off old saved games.

If you are playing on an IBM PC and you choose to restart a previously saved game, type in the name of the saved game **when** the continent dialog box comes up at the **beginning of the game. Make sure you select the appropriate level of play for the saved game; then select "Use Saved Game."** (Your disk with the saved game file should be present in the drive that you have designated for saved games.) Press ENTER, or click on the "Proceed" button. (NOTE: The program saves CGA games in a different format than it does EGA, MCGA, and VGA games. You cannot load a saved VGA game into CGA, or vice versa.)

Phase 1: Production

The first phase is the Production phase. In this phase you will allocate your workers to factories to make things. The main screen for this phase shows an intimidating table called "Production Summary."



The screenshot shows a window titled "Game Kingdoms Affinities" with a sub-header "Continent trebolokhan". The main title is "PRODUCTION SUMMARY FOR GANTHOR". The table below lists commodities, their output, surplus, the factory producing them, and the number of workers assigned.

Commodity	Output	Surplus	Manufacturing Factor	Workers
Lumber	268	= 8	Labor	27
Sulfur	0	0	Labor	0
Iron Ore	218	0	Labor	30
Coal	0	0	Labor	0
Charcoal	49	= 6	Labor	6
Pig Iron	199	= 27	Charcoal	30
Gunpowder	0	0	Labor	0
Iron	0	0	Labor	0
Farm Tools	399	0	Pig Iron	56
Iron Plow	0	0	Labor	0
Food (461)	618	157	Labor	309
Sword	0	0	Labor	0
Musket	0	0	Labor	0

Here's what it means:

The first column is labelled "Commodity." This column lists the various commodities that you can build in this game. Some are raw materials such as lumber and coal; some are intermediate materials such as charcoal and pig iron; some are agricultural products such as farm tools and iron plows; and some are weapons such as swords and muskets.

The second column shows the output of your factories. You will note that some of your factories are already making things. That's good, but it could be better. You want to see lots of big numbers in that output column.

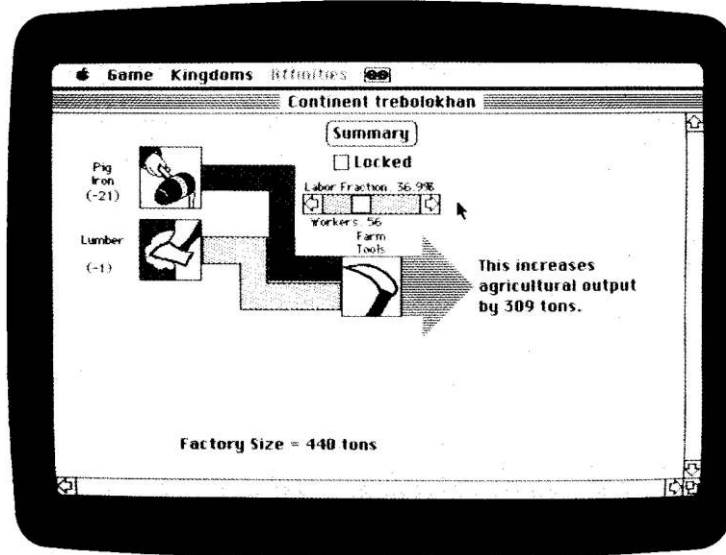
The third column shows the surplus of each commodity. This is the amount of commodity that you are not using. If, for example, your lumber yard is producing ten tons of lumber, but your farm tools factory is using only eight tons of lumber, then you will have two tons of surplus lumber. If you have a shortage of a commodity, the surplus will be shown as a negative number in outline form, which should be striking enough to leap off the screen, slap you in the face, and demand, "Fix me! Fix me!" You do NOT want any of those numbers.

The fourth column shows the “Limiting Factor.” This is the factor limiting production of the commodity in question. Most of the time it will be labor, meaning that you need more workers to make the factory bigger. However, if your production of, say, muskets is held back by shortages of iron, then iron will be listed as the limiting factor for muskets. This makes it easier for you to figure out what you need to fix.

Food production is a little different, in two ways. First, there is a number posted in bold letters next to the word “Food.” This is the minimum amount of food you need to keep your population intact. If your food production falls below this value, some of your people will starve to death. Second, you cannot adjust the number of agricultural workers- but the computer will explain this to you if you try.

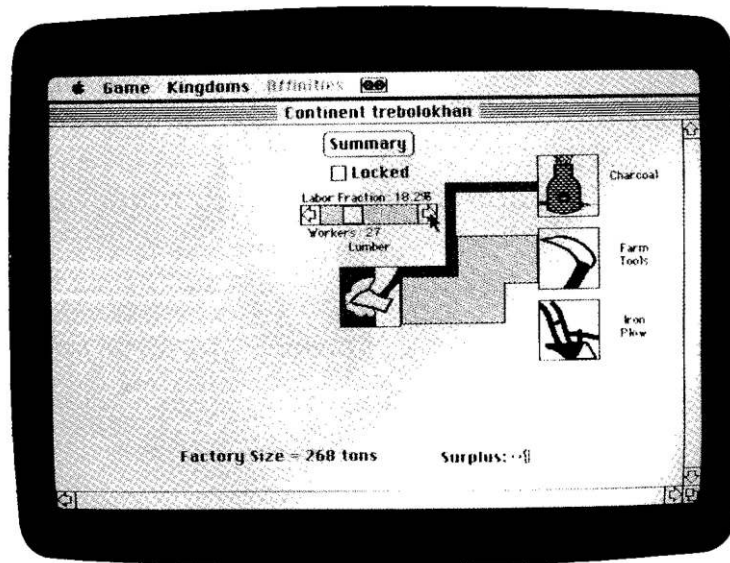
Setting Production

OK, it’s time to do some work. Click on the words “Farm Tools;” then release the mouse button. Through the magic of computer programming, a new screen appears. This screen allows you to control the production of farm tools. You will note the farm tools icon in **the center of the screen**. On **the left side of the screen** are the icons for **lumber and pig iron**; they indicate that **lumber and pig iron are required inputs for making farm tools**. Just **above the farm tools icon** is a **scroll bar**. This **scroll bar allows you to allocate workers to the farm tools factory**. There **should already be some workers assigned to the farm tools factory**. **Play with the scroll bar**. As you change it, it will show two things changing in response: what percentage of the work force is allocated to the farm tools factory, and how many workers are working there.



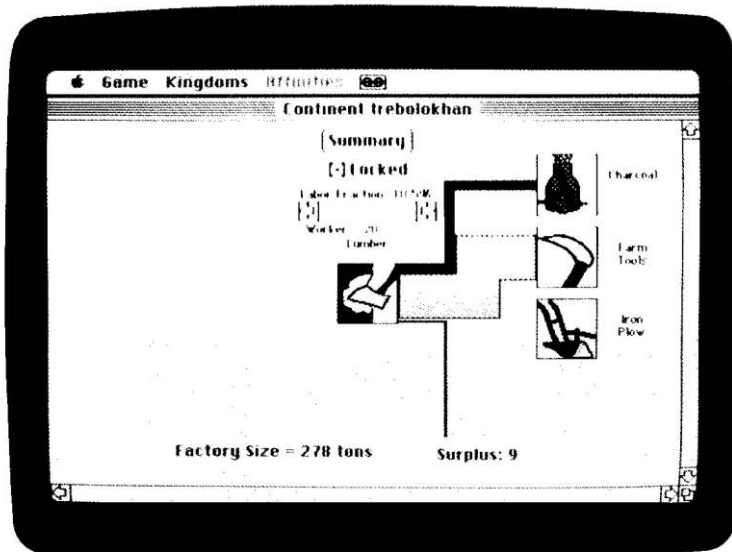
The important thing to notice is the notation at the bottom of the screen: "Factory Size: XX tons." This tells you the capacity of the factory, the amount of stuff it will make IF it gets all the raw materials it needs. Notice how the factory's capacity changes as you change the workers. If you double the workers, the capacity more than doubles. **THIS IS IMPORTANT!!!!** It is called "economy of scale;" and it means that bigger factories are more efficient than smaller factories. The entire game turns on this simple fact, in some very subtle ways.

OK, for now, set the scroll bar somewhere in the middle, so that most (say 80%) of your workers are in the farm tools factory. You'll make lots of farm tools that way, right? There's only one problem: you need lumber and pig iron for the farm tools, and you will notice that they both show a negative number in parentheses underneath. That's the number of tons of lumber and pig iron, respectively, that you are short by. How do you fix this problem? Simple-click on the lumber icon.



You are instantly transported to the lumber factory screen. It looks much the same, except there are no input commodities on the left side of the screen. Lumber is a raw material; you don't need any inputs to make lumber. All you need are workers. There *are* outputs along the right side of the screen, factories to which the lumber might go. One of these is the farm tools factory.

Go to the labor scroll bar and click, for just a second or two, on the little arrow on the right side of the scroll bar. This will increase the number of workers assigned to the lumber factory. If you don't get anything at all, click again until you get some output from the lumber factory. You will know because you will see a river of lumber flowing out of the lumber factory and into the farm tools factory. The amount of lumber is specified by the "Factory Size" label at the bottom of the screen. You will know whether this is enough by checking the "Surplus" label on the lower right side of the screen. If it is positive, then you have a surplus of lumber. If it's negative, then you don't have enough lumber. So all you need to do is keep increasing the number of workers until your deficit or surplus is small.



Where do all these workers come from? They are automatically stolen from any other assignments you had previously given them. Now some of them have been reassigned to the lumber factory. This system of automatically moving workers around cuts down on the amount of busy work you must do. But it is definitely confusing to beginning players. For example, when you reduce the workers allocated to a factory, the excess workers are distributed among the other factories on a prorated basis. This means that you can completely obliterate your carefully considered worker allocations by simply putting all of your workers into a single factory. This can be a real mess. So don't do that unless you want to wipe out all your worker allocations! (Appendix A provides a detailed explanation of the allocation system, if you must know.)

This mysterious and confusing worker allocation system makes it easier to adjust all your worker allocations. When you see a factory that has too little or too much output, just change the worker allocation until the surplus is close to zero. The labor shortages or surpluses you thereby create will be smoothly distributed through the entire economic system. Then flit through the rest of the economic system, performing touch-up re-allocations to get everything balanced out just right.

I have provided a feature to help you simplify the complications of this automatic worker allocation system. It is the “Worker Lock” checkbox just above the labor scroll bar. If you click this checkbox, the worker allocation for that factory will be locked. You will not be able to change it, and neither will the smarty-pants algorithm. It will stay just the way you left it. When you are juggling umpteen different factories and you finally get one just the way you want it, you can lock it and rest assured that the workers will stay put. You can always unlock it to change it. You can also lock and unlock factories from the “Summary” screen by simply clicking on the worker allocation number; a locked factory is indicated by a box enclosing the worker allocation number.

Production Item	Output	Surplus	Production Rate	Workers
Lumber	278	9	Labor	28
Sulfur	0	0	Labor	0
Iron Ore	218	0	Labor	30
Coal	0	0	Labor	0
Charcoal	49	-6	Labor	6
Pig Iron	199	-21	Charcoal	30
Gunpowder	0	0	Labor	0
Iron	0	0	Labor	0
Farm Tools	399	90	Pig Iron	56
Iron Plow	0	0	Labor	0
Food (461)	618	157	Labor	309
Sword	0	0	Labor	0
Musket	0	0	Labor	0

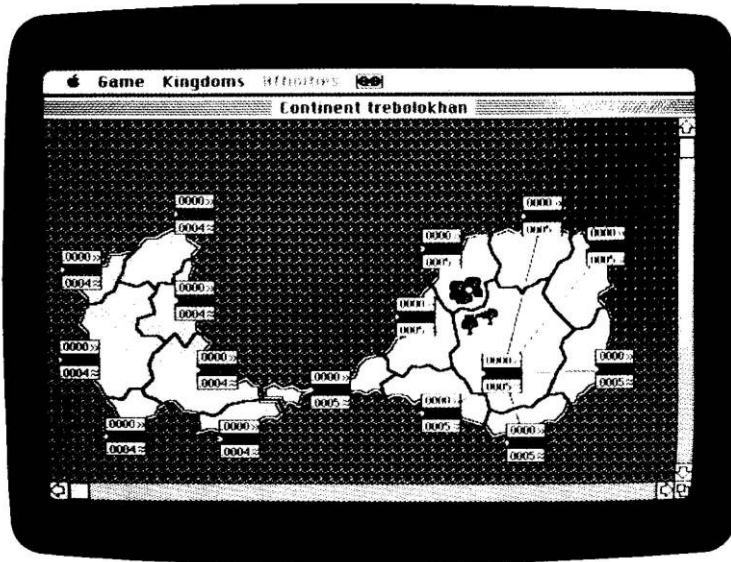
Now click on the farm tools factory icon on the right side of the screen. You are magically transported back to the farm tools factory. Note that it has fewer workers now than when you were last here. Remember, you took some workers away to labor in the lumberyard. Note too the river of lumber flowing into the farm tools factory. It also shows an output in the form of an announcement that these farm tools are increasing agricultural output by a certain amount. Good! You are making things now! Of course, your pig iron supplies are probably off, so click on the pig iron icon and go fix things there.

Return to the “Production Summary” chart by clicking on the “Summary” button at the top center of the window. Note whether there is now a food surplus. This is very important! Surpluses of food are the basis for population increase. You see, if you put extra food into people’s mouths, babies will come out. At least, that’s how it works on the large scale. I think it’s different at smaller scales.

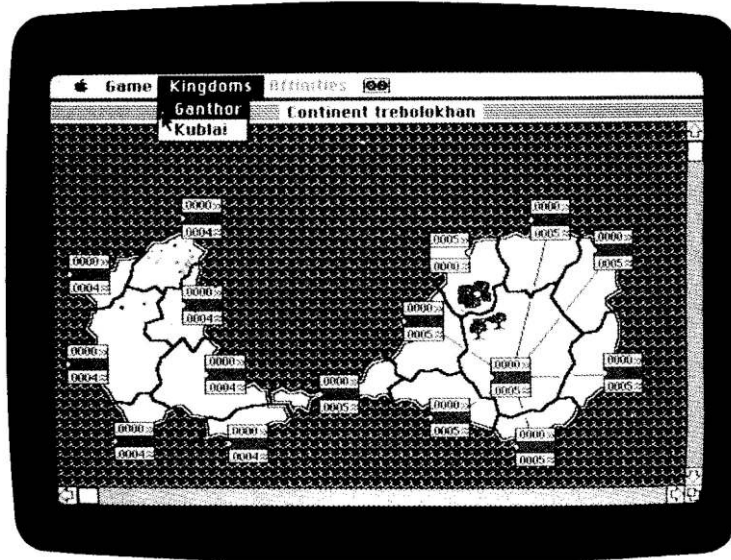
Now click on the word “Sword” and look at your sword production. It is probably zero. That’s not good—you need swords to deter your opponent from engaging in aggression **against your peace-loving people. Besides, without swords, you can't conquer the world. Increase the worker allocation so that you make some swords. Of course, now there probably isn't enough pig iron to go around, so you'll need to adjust that upward, and you'll probably need some more pig iron and lumber and charcoal and iron ore. You'd better get busy! When you've got everything balanced out just right, select “Next Phase” from the Game menu and proceed to the next phase.**

Phase 2: Military Orders

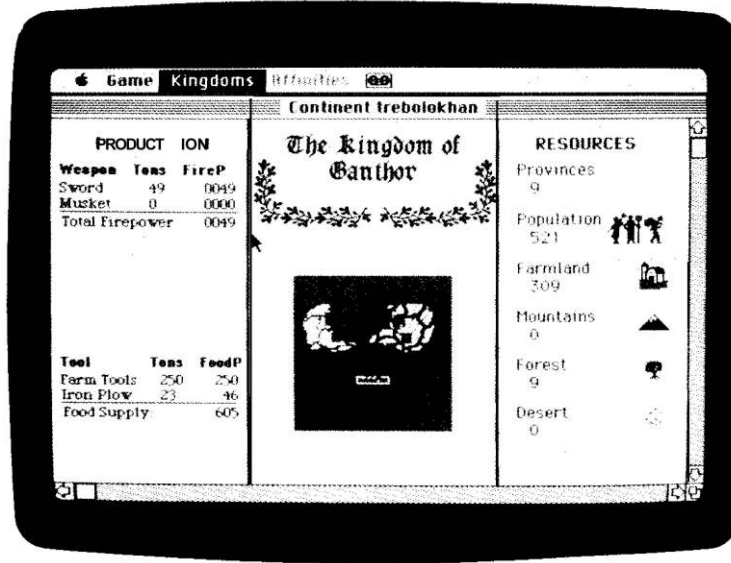
In this phase, you give orders to your troops. You will see the map on the screen, except that the towns have been replaced by large shaded boxes. Those boxes allow you to give orders to the troops in each province. There are two numbers in each box, with a horizontal bar between them. The upper number is the amount of military power (I call it “firepower”) that is marching off to war. The lower number is the amount of firepower that is staying home this turn.



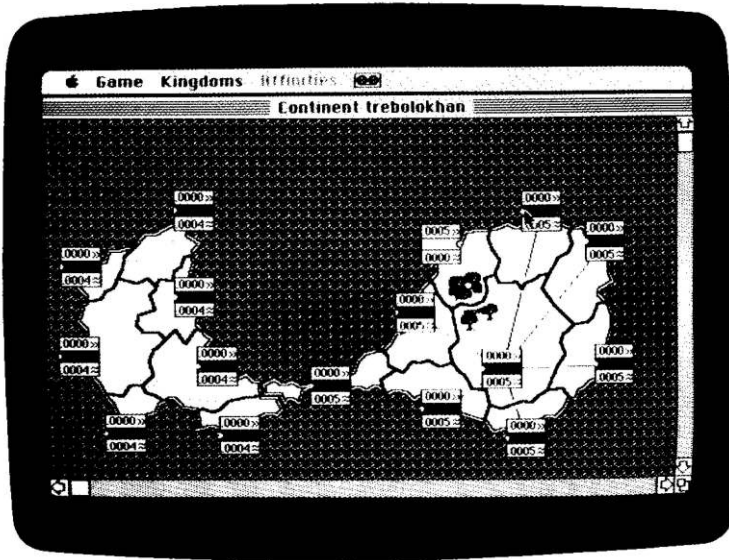
Select one of your own provinces. If you have problems remembering which provinces are yours, just select the first menu item (your name) from the Kingdoms menu to look at a reduced-scale map showing your provinces in outline. When you are done looking at it, just click on the



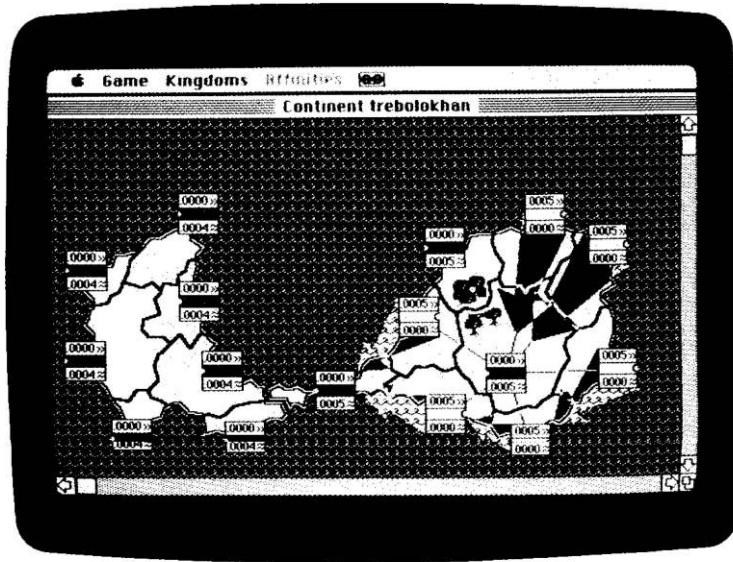
mouse button. Another approach is to click on the lower third of the square for the province; that will generate a closeup display of the province that will tell you who owns that province.



OK, so you've got your eyes on one of your provinces. Mouse on over to the military box for that province. Notice that there is a tiny white dot in the center of the left edge of the box. It's a little white bump on the left side of the gray bar. Click and hold on that little bump. Notice that the cursor disappears. That's good- you've got it! Now, still holding the mouse button down, drag the mouse toward the right. See how the little white bump follows you? As it does, it changes the gray slider. It also changes the distribution of firepower that is going and firepower that is staying. If you slide the slider all the way to the right, then all your troops will march off and none will stay behind. If you put it in the middle, then half will march and half will stay. Release the mouse button when you've got it where you want it. This device is a tiny scroll bar for allocating your soldiers. Clever, no?



OK, so you have set some of your soldiers to march off. To where are they going? Once again, you use the mouse to set their orders. Mouse to the top third of the military box, the section with the number showing how much firepower is marching. Click down and hold. Now drag the mouse to an adjacent province. A big black arrow will appear. That arrow means that the troops will march on that province. If you continue to move the mouse around, the arrow will jump to any other adjacent provinces the mouse enters. When you release the mouse button, the orders are frozen. Of course, you can always go back and re-enter orders while you are still in the military orders phase.



Give orders to all your troops to move all over the map. Make sure that some of them cross the border to attack Kublai's provinces. Then brace yourself and select "Next Phase."

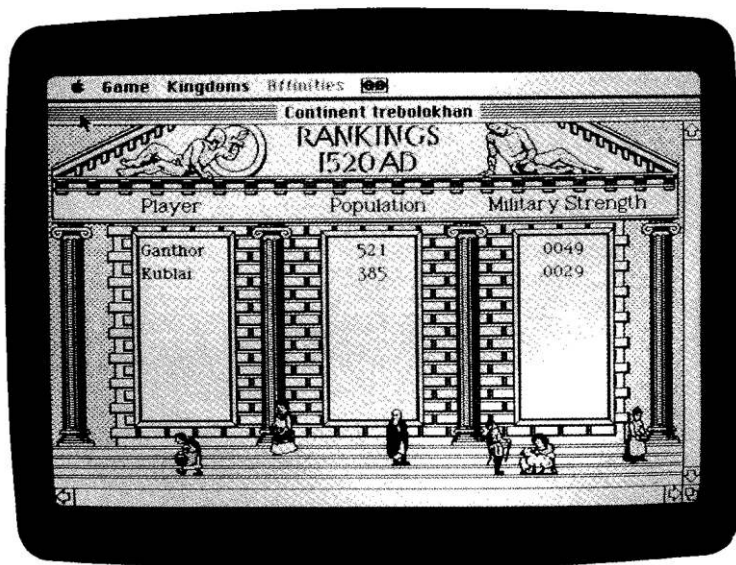
Phase 3: Military Execution

Things will happen fast now. The computer will execute all your military orders. First it will execute the simple troop transfers, in which your troops march from one friendly province to another. You will see arrows marching around the map, and hear the sound of their little feet going pitter-patter on the dusty roads. Perhaps you might want to sing a marching song along with them. Sing fast.

If you gave any of your troops orders to march into enemy territory.. well, that's different. You will see your troops march toward their objective, then you will see a violent battle with the sound of men shouting and cursing, and then you will lose the battle. Your army will fade away with a despondent whistle. Well, what did you expect, you nasty aggressor, you? You don't think that you can win battles with puny armies, do you? If you want to conquer the world, you're going to need some *real* firepower, the kind that you make in factories (hint, hint!).

Phase 4: Rankings

When the Military Execution phase ends, the game automatically jumps to the Rankings phase. This modest little display shows you where you stand in the world. The primary measure of strength is population. If you are Number One, then you are winning. If not, you know whom to beat. If that last turn went particularly poorly, and you now regret the errors of your ways, then now is the time to select "Undo Last Turn" from the Game menu.



When you are done with the Rankings display, select “Next Phase” and you will be back to the Production Summary display that you began with oh so long ago. You have just completed one turn. But wait! You must now cope with an avuncular fellow smilingly inquiring into the status of your paperwork. You will indulge him, won’t you? I assure you, he won’t take no for an answer, And if you do satisfy him, he won’t bother you for a while.

Doina It Aaain

Now you must repeat the cycle. Each turn, however, your population will have grown because of the food surplus you created—at least, that’s what *should* happen, if you are playing well. A greater population means more workers to put into the factories. More workers in the factories means greater efficiency (remember “economies of scale”?). After a few turns you will have **enough workers that you will be able to start building iron plows instead of farm tools. Iron plows are twice as productive as farm tools. But you will need iron and coal to make iron plows. and that will take more workers.**

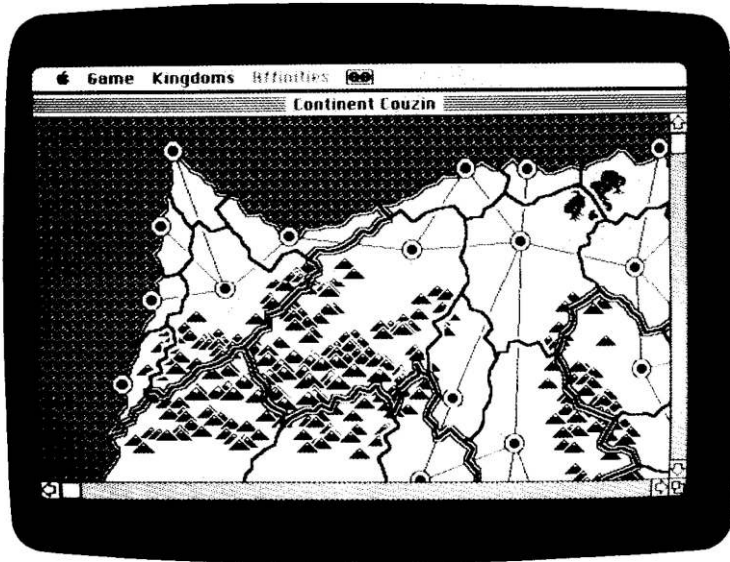
While you’re building all these wonderful agricultural tools, you might also want to build some weapons for your armies. If you don’t, Kublai might just build some weapons himself and invade you. Of course, when you build weapons, your production of agricultural tools is diminished, and your food supply is consequently reduced. This, in turn, will cut into your population growth. So, what will it be—weapons or agricultural tools? Guns or butter?

The game ends when one player conquers the world. As is *de rigueur* with computer games, your victory or defeat will trigger a cute but useless animated display meant to reward your success or failure. Enjoy it. A small pellet of rat chow will also be released from the chute on the side of your computer.

You should find it easy to defeat Kublai on continent Kittycat. That’s because you start the game with a bigger country. If you want more challenge, you might try playing the Beginner level game with a different continent. Be creative in choosing a name for a continent—with two billion possible continents the odds are very high that you will be going where no player has gone before.

INTERMEDIATE LEVEL GAME

Once you have mastered the Beginner level game, you will want some more challenge. I am pleased to tell you that you have only scratched the surface of the possibilities of this game. Start a new game, and pick the Intermediate level game option in the initial dialog.



The Intermediate level game has four players instead of two. That makes for a more complex set of possibilities. It is played on a larger map of the world. There are also more advanced commodities available for you to build.

Terrain Counts Now

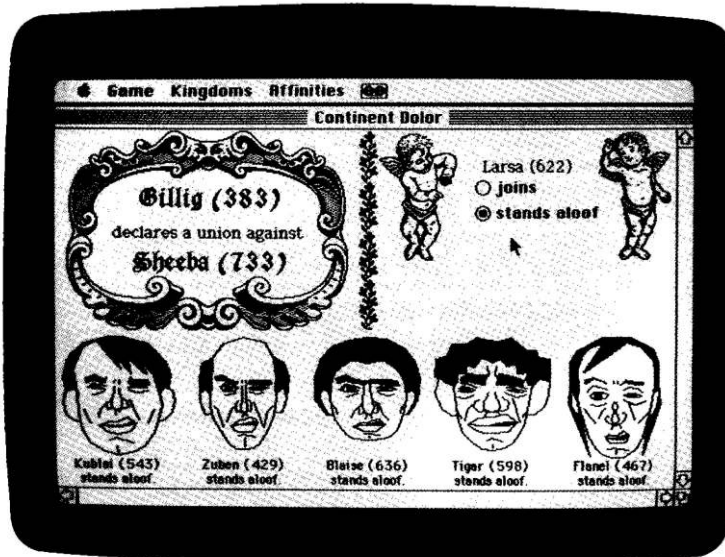
In the Beginner level game, terrain (forests, mountains, and deserts) didn't mean anything. Now it does. If you want lumber, you can always get it, but you'll get it a lot more cheaply if you have some forest land. Mountains are the place to go for iron ore, coal, light metals, and heavy

metals. Deserts are the prime source for sulfur, nitrates, and petroleum. Mind you, you can still get these things even if you have no deserts, no mountains, and no forests, but it will cost you a lot more workers to get the same amount of stuff. So if you find that you have no mountains at all, and one of your neighbors has a lot of mountain land, then perhaps a little military expedition to liberate those resource-laden mountains might be in order.

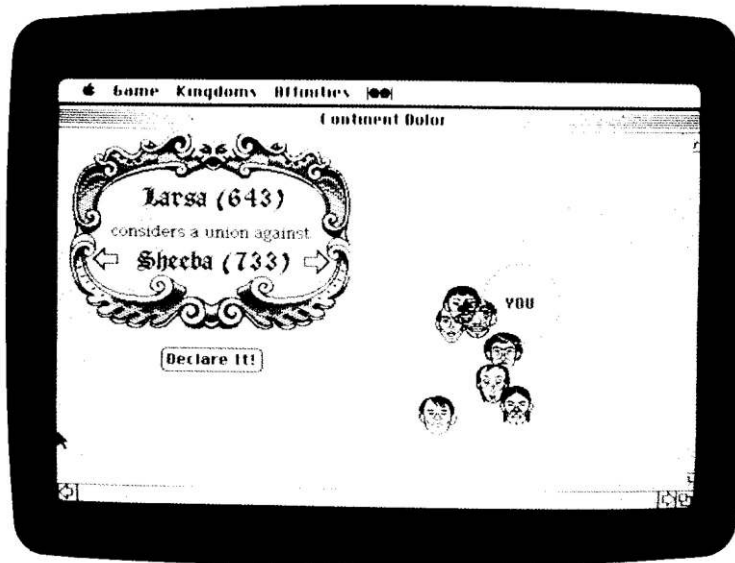
EXPERT LEVEL GAME

OK, once you've mastered the Intermediate level game, you are ready to take on the biggest, meanest, orneriest level of **The Global Dilemma: Guns or Butter**: the Expert level. The Expert level is the real game; the lower levels are just training-wheels versions of the game. In this level, you get to play against seven computer-controlled players. The world is accordingly larger, making the game bigger and more complex. And, to add to your headaches, the list of commodities that you can build is even longer than before. Now you can build cannons or irrigation systems, or tanks, or tractors. All this will, of course, require even more resources and more careful allocation of your precious labor supply.

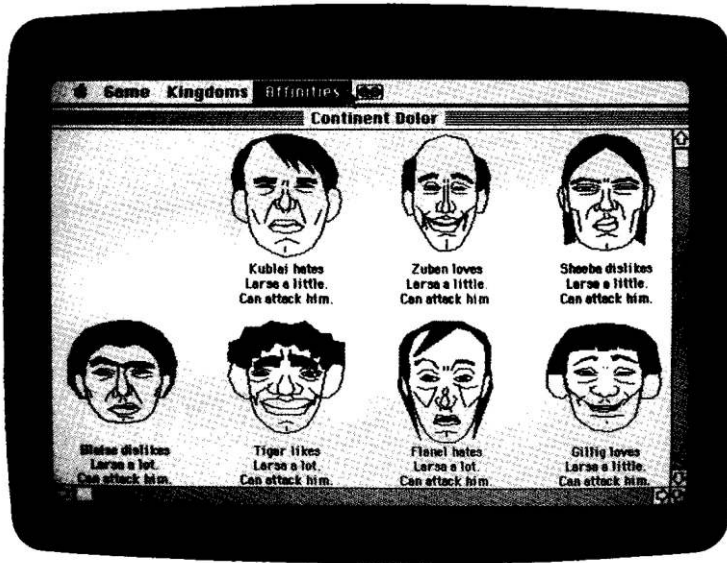
There is a new phase in the Expert level game: the Economic Union phase. It allows you to create economic unions with other players. This phase takes place before the production planning phase. The weakest player in the game will declare a union against his worst enemy, and you will have the option to either join the union or stand aloof. In these displays, every player's name is presented along with his population, the all-important measure of a player's true strength. If you wish to join, click on the "joins" button. When you have made your decision, select "Next Phase." There may be other unions formed, and you will again need to decide whether to join or stand aloof. If you do not join anybody else's union, you will have the option of declaring your own union.



If this case arises, you will see a display stating that you are considering a union against another player. You can change the player against whom you wish to declare by clicking on one of the arrows next to the player's name. The display on the right side of the screen shows you the diplomatic relationships that will determine who joins your union. The person against whom you are considering declaring a union will be placed directly below your icon (the one in the center of the dotted circle); his distance from you will be proportional to his dislike for you. The other people will then jostle around like participants in a cocktail party, edging away from people they don't like and toward people they do like. You don't recognize them from their faces? No problem! Just click on a face and it will tell you who that person is, how many people he has, and whether he is free to join your union. Any free agent who falls inside your dotted circle will certainly join your union (except, of course, the person against whom the union is declared). You can declare a union by clicking on the "Declare It" button, or waive your option to declare by selecting "Next Phase."



If you join somebody else's economic union against a third player, the founder of the union will take control of your economy for that turn, and all the members of the union will enjoy the economic benefits of the larger population base of the union. You will also be constrained in your military attacks: you can only attack the enemy against whom the union was formed (or anybody who is part of a union declared against you). If you form a union, and people join your union, then you will be able to control the joint economy of the union for that turn. Your labor supply and terrain base will be enlarged by the other members of your union. Remember, this is all heavily diplomatic, so pay attention to the diplomatic affinities expressed in various ways in the displays. You can look up diplomatic relationships directly with the menu entitled "Affinities." You can also see the current set of unions with the menu item "Show Unions."



Appendix A

Some Fine Points on Production

The production system used in **The Global Dilemma: Guns or Butter** has some idiosyncracies. First is the fact that nothing is accumulated. Any unused materials are swept into the rubbish at the end of the turn. Use it or lose it!

Much trickier is the method used to allocate commodities to factories. The economies in this game are demand-driven rather than supply-driven. That is, a farm tools factory with a capacity of 100 tons will demand 50 tons of lumber and 50 tons of pig iron. Now, suppose that you had 50 tons of pig iron and only 40 tons of lumber. You might think that the farm tools factory would recognize that the shortage of lumber will limit its output to 80 tons of farm tools, and would therefore graciously release the 10 tons of pig iron that it cannot use. No such luck! The farm tools factory manager says, "I need 50 tons of pig iron and 50 tons of lumber, and I will hold onto my 50 tons of pig iron."

There is also a priority system for allocating commodities. The general rule is this: simple factories have higher priority than complex ones. Consider the previous example. Suppose that the lumber factory was making 50 tons of lumber, but the charcoal factory wanted 10 tons. Remember, the farm tools factory wants 50 tons, so the demand (60 tons) exceeds the supply (50 tons). Who gets short shrift?

The program automatically answers this question for you: the charcoal factory has higher priority. Why? Because charcoal is lower down on the production sequence, and its failure would ripple more widely through the economy. If all the lumber went to the farm tools factory, then there would be no lumber for the charcoal factory, hence no charcoal at all. With no charcoal, the pig iron factory would not be able to make any pig iron, and with no pig iron, the farm tools factory would not be able to make any farm tools.

All this is handled automatically by the computer. Isn't that nice of me to do that for you? Of course, if you don't realize that this is happening, you might get confused when things don't go as you expect, and then you might become cross with me. Please don't.

Appendix B

How to Win

Production

First, optimize your production. Ferret out waste in your economy. Make sure that any production surpluses or shortages are tiny. You don't have to get them down to exactly zero; that is often impossible. Just make sure that surpluses or shortages are small. Remember, production surpluses are not saved over for the next year- they are thrown away. So don't create any in the first place. If you have a shortage somewhere, you must decrease something else to free up the workers you'll need to eliminate the shortage. The high-tech term for this concept is "lowered expectations."

By the way, you ARE making the right things, aren't you? Each technology has its optimum range of applicability. For example, it is foolish to build tractors at the beginning of the game when your population is small. You really can't afford to build tractors until you have a large population. By the same token, you can't keep building the same old technology as you grow. You've got to move on, advancing to new and more powerful technologies as you grow. Remember, your farmland acreage imposes an upper limit on the amount of agricultural tools you can use. If you have 300 acres of farmland and you are making 500 tons of iron plows, then you are wasting 200 tons of iron plows. It's time to move up to combines.

The algorithms are set to provide crossover at 342 tons. That is, when you are making 342 tons of any given agricultural tool, it should be just as productive to make 171 tons of the next higher tool. Of course, your mileage may differ depending on the terrain in your country..

The same thing goes for weapons. Sure, you could keep on building swords till the cows come home, but muskets are, ton for ton, twice as powerful as swords. At a certain point you really should move up to muskets. Moreover, you should remember the economies of scale. If you are building iron plows with iron, and swords with pig iron, then you are losing out on the economies of scale that would arise from having a single larger iron mill. If you abandoned swords for muskets, then you could eliminate pig iron production entirely and expand the iron mill, achieving greater efficiency. Of course, you'd also need to open up a gunpowder factory and a sulfur factory.. . .

Military Strategy

OK, you're doing a good job building weapons, but you just don't seem to be able to beat the enemy on the battlefield. Why not? Well, there are several possibilities. You are concentrating your troops at the danger spots, aren't you? After all, it does no good to have all your troops lounging around back in the rear. Get 'em up front where they do some good!

On the defensive, try to anticipate where a potential enemy might attack. If you have a province that is lightly defended, and the enemy next door has strength, you might be able to win a big defensive victory by shuffling troops into the province before his troops arrive. Remember, troop reshuffling always takes place before battle, so you can really frustrate your enemies by reshuffling your troops in such a way that they always end up hitting you where you are strong, and missing you where you are weak.

The first rule for attacks is to attack down roads whenever possible. When you attack across anything other than a road, your forces suffer an additional 75% casualties after they reach the battlefield and suffer an initial 10-point loss! You should attack only down roads unless an attack on other terrain is unusually opportune.

Once your forces reach the battlefield, they suffer an outright 10-point loss, and the defender is boosted by 10 firepower points. Then the defender's strength is subtracted from the attacker's strength. If there are any attackers left after all this, then the attacker wins the battle and captures the province. Thus, if you are attacking down a road, you will need at least 20 firepower points just to capture a province with no defenders at all. If you are attacking across other terrain, you will need at least 50 firepower points to capture a province with no defenders at all.

Diplomatic Strategy (Expert Level game only)-

Diplomacy plays a larger role in the Expert level game than anything else. Every act you take affects people's opinion of you. Join an alliance, and the founder will appreciate you more, but the victim of the alliance will resent you. Declaring an alliance against somebody will not endear him to you. And the only thing worse than attacking another player's province is winning the attack.

Diplomacy is important because it determines who will join whose union against whom. If you are well-regarded by the other players, they will not form unions against you, and will instead flock to join your unions. If, on the other hand, you are roundly hated, then they will rush to join unions against you. They will assail you on all sides, they will take your provinces, and you will die a miserable and lonely death. So be nice.

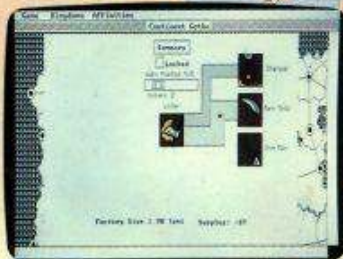
These players are not fools. If you pull ahead of them, they will gang up on you. Find a firm friend and stick with him through thick and thin-until the two of you have bumped off everybody else. Then have the knife ready in hand as you embrace him.



THE GLOBAL DILEMMA GUNS OR BUTTER



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